2D Jump Enemy AI - Smooth Animations, Camera Shake & VFX

User Guide

Introduction

This package introduces a customizable 2D Jump Enemy AI that can move, patrol, jump attack the player, and react to player collisions. The enemy features smooth animations, camera shake effects, VFX, and death effects. You can adjust movement settings, animations, jump mechanics, sound effects, and visual effects using Unity's Inspector.

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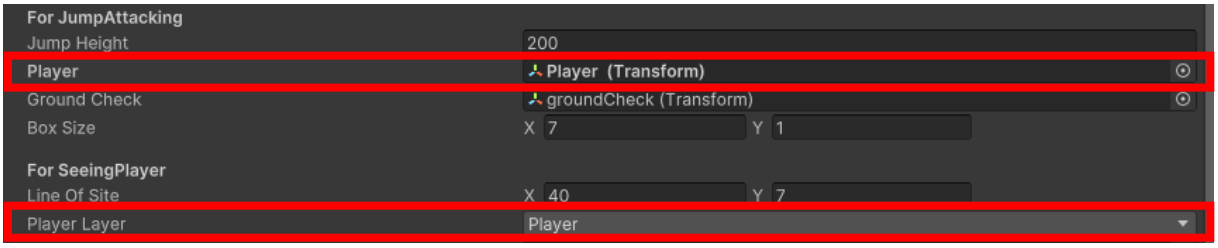
Setting Up the Enemy

1. Adding the Enemy to Your Scene

1. **Drag and drop** the *JumpEnemyPrefab* into your scene.
2. Ensure that your player GameObject is tagged with the **"Player"** tag and put it in the inspector. This allows the enemy to detect the player during patrol and attack phases.



3. Adjust the enemy's position, rotation, and scale as needed to fit within your scene.

2. Setting Up the Enemy Components

The **Jump Enemy AI** script is attached to the enemy prefab. The following components are required for full functionality:

- **Rigidbody2D**: For physics calculations (movement, jump).

- **Animator**: For controlling animations.
- **CinemachineImpulseSource**: For generating camera shake during jumps.
- **Particle System**: For the jump and death effects.

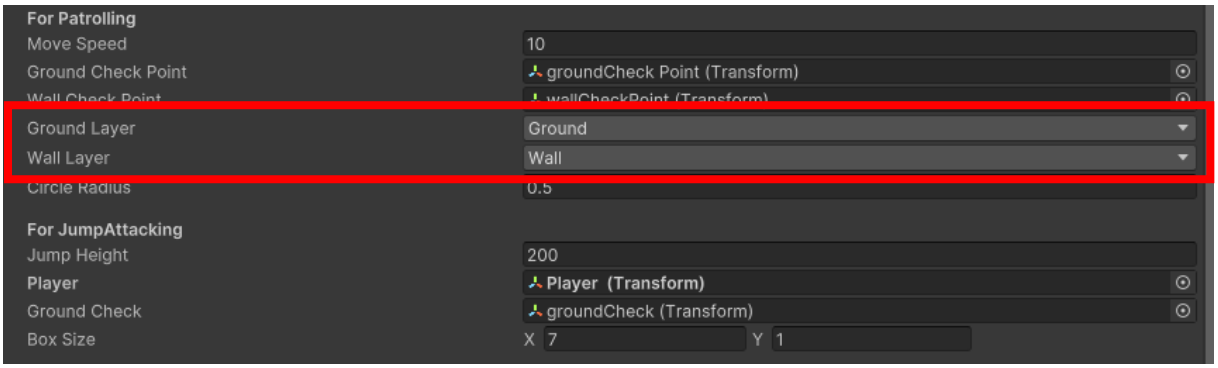
Make sure these components are already attached in the prefab or add them manually.

3. Layer Setup

It is **crucial** that you set the correct **Layers** for the enemy to detect the ground and walls properly:

- **« Wall » Layer**: Assign this layer to all wall objects in your scene that the enemy will interact with.
- **« Ground » Layer**: Assign this layer to all ground objects the enemy will walk on.

This will ensure proper collision detection and movement behavior for the Jump Enemy AI.

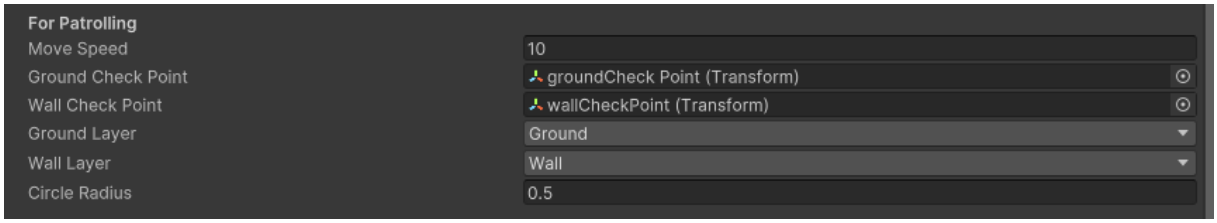


Customizing Enemy Movement

1. Patrol Customization

The enemy patrols back and forth automatically using the following settings:

- **Move Speed**: Adjust this value in the Inspector to control the enemy's walking speed.
- **Move Direction**: This determines the direction the enemy is moving. It's set to **-1** by default, meaning the enemy will initially move left.
- **Ground Check**: The enemy checks whether it is on the ground using a small overlap circle (set the radius in the Inspector). When the ground is not detected, the enemy flips direction. Modify the radius to increase or decrease the area checked for ground.



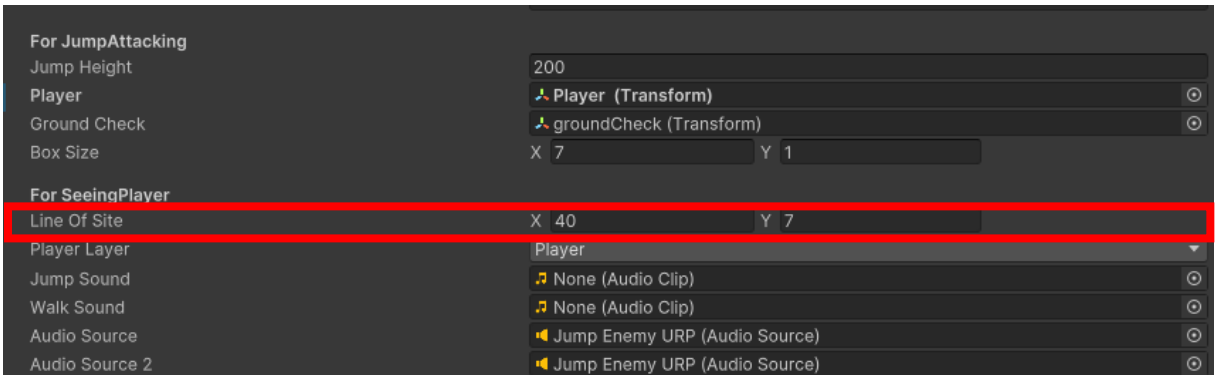
2. Patrol Animation

- The enemy plays the **"JumpEnemyWalk"** animation when patrolling. You can replace or modify this animation to suit your needs.

Customizing Jump Attacks

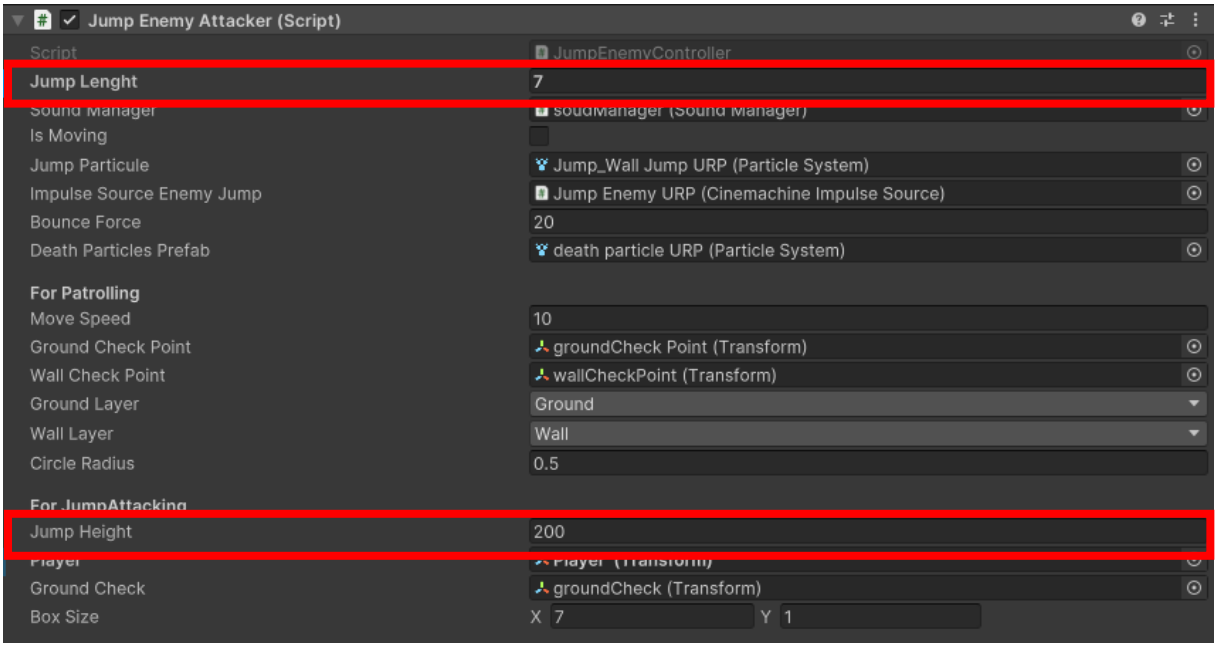
1. Jump Attack Mechanism

The enemy will jump toward the player when it detects them in the **line of sight**. The **line of sight** can be customized to any length or width you want, allowing you to adjust the detection area as needed for your game. You can modify the **lineOfSite** variable in the Inspector to set the size and angle of the detection box.



The enemy will perform a jump attack with the following properties:

- **Jump Length**: Adjust this value to determine how far the enemy will jump towards the player.
- **Jump Height**: Set the jump height to control how high the enemy jumps.
- **Jump Sound**: Customize the sound effect played during the jump attack.



When the player is within the enemy's detection range, the enemy will:

1. **Flip**: If the player is behind the enemy, the enemy will rotate to face the player.
2. **Jump**: The enemy will jump towards the player's position, with the camera shake and jump VFX triggered.

2. Jump Animation

- The enemy plays the **"EnemyJump"** animation during its jump attack.

Important Note: Sound Manager

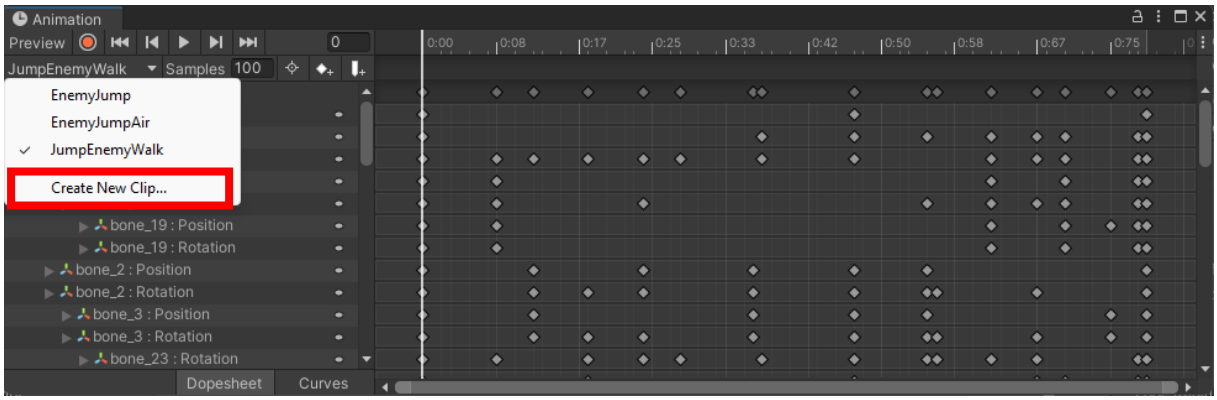
To ensure the death sound of the enemy plays correctly, you must include the **Sound Manager prefab** in your scene. The **Sound Manager** is responsible for playing the death sound when the enemy is destroyed upon colliding with the player. Simply drag and drop the **Sound Manager** prefab into your scene, and the appropriate sound effects will trigger during gameplay.

Customizing Animations

1. Modifying or Adding Animations

To customize animations:

1. **Select** the enemy in the Hierarchy.
2. Open the **Animation Window**: Window > Animation > Animation.
3. **Modify** existing animations or create new ones for the patrol, jump, and death actions.



Animations that are available by default:

- **JumpEnemyWalk**: Animation for walking.
- **EnemyJump**: Animation for jumping.
- **EnemyJumpAir**: Animation for when the enemy is in the air.

2. Animator Transitions

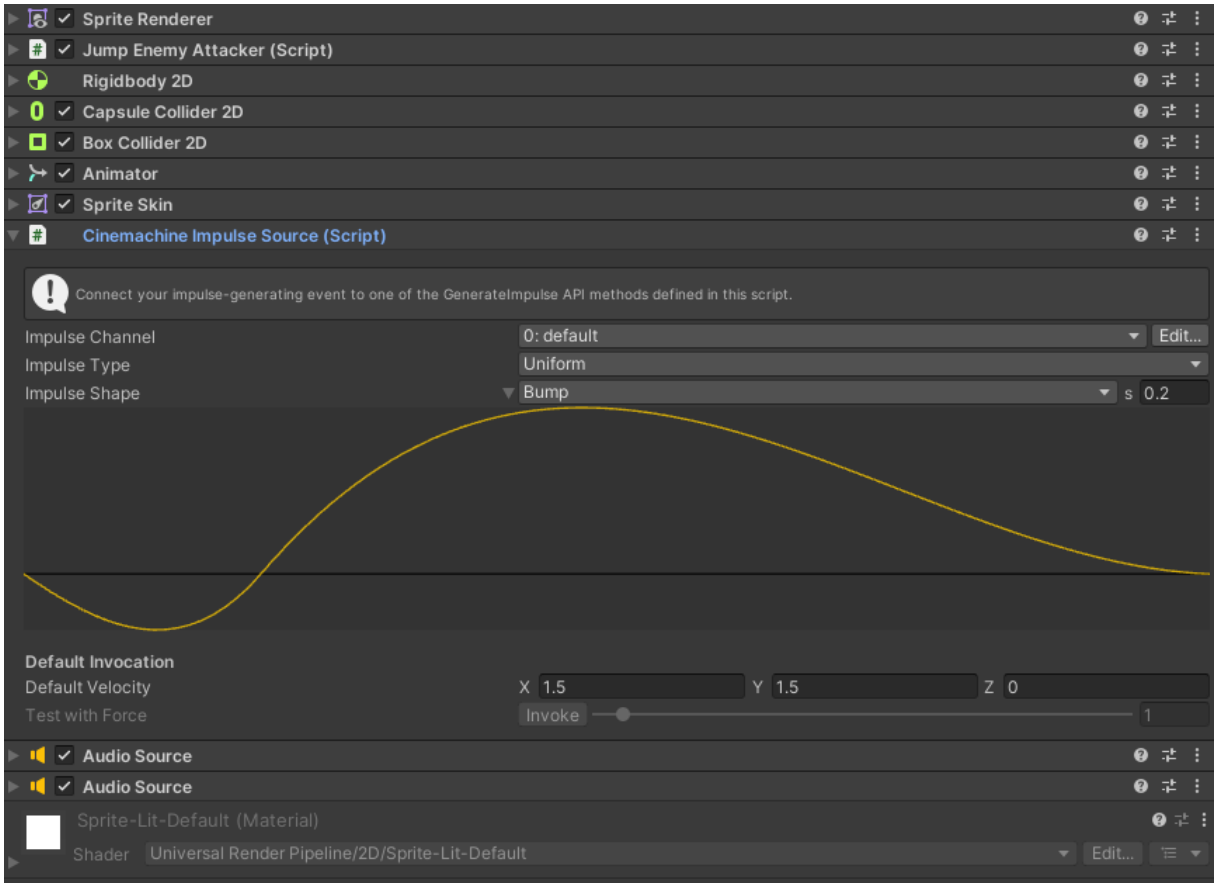
You can adjust the animator transitions between the different animations (e.g., walking to jumping) to make the movements more fluid.

Camera Shake and VFX

1. Camera Shake

When the enemy performs a jump attack:

- The **Cinemachine Impulse** is triggered, causing a **camera shake** effect.
- The intensity of the shake can be customized in the **Cinemachine Impulse Source** component.



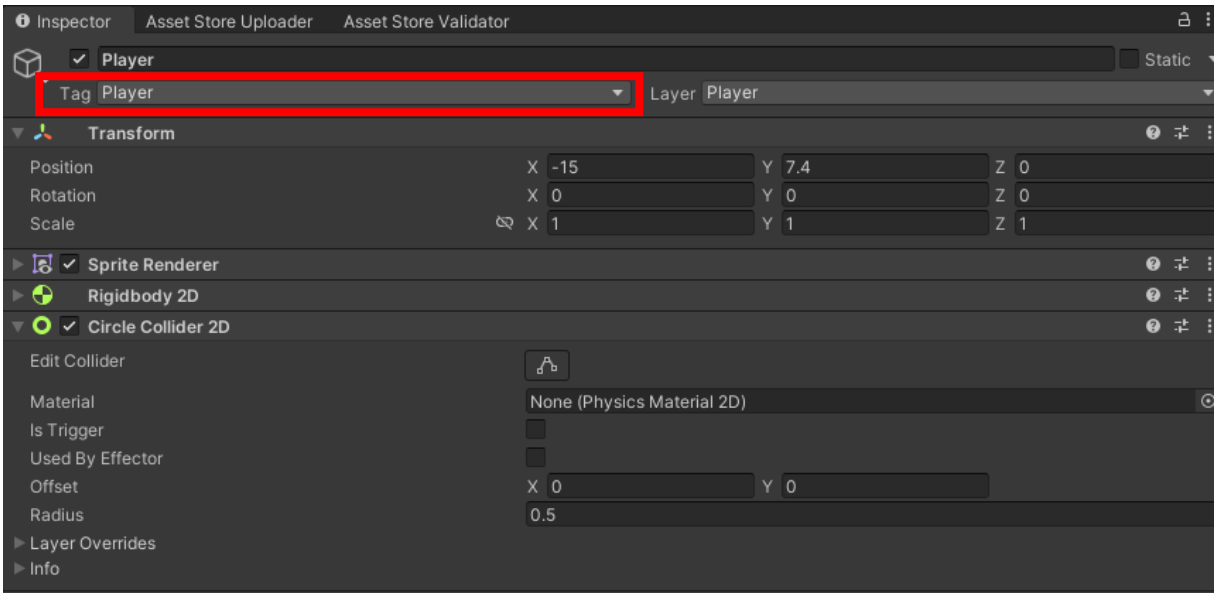
2. Jump VFX

- The **Jump Particles** will play every time the enemy jumps, adding a visual effect for the jump.

Important Notes

1. Player Detection

Ensure your player has the **"Player"** tag, or the enemy will not be able to detect the player and trigger the jump attack.



2. Modifying Collider Sizes

- You can adjust the **circle radius** used for detecting the ground, as well as the **box size** for detecting whether the enemy is grounded.
- The **line of sight** detection can be modified to suit different game environments.

3. Flipping Logic

The enemy will flip automatically when it reaches the edge of a platform or when it detects a wall. This can be customized by modifying the **Flip()** function.

Summary of Important Steps

✓ **Tag your Player** as "Player" to ensure detection by the enemy.
✓ **Assign Layers** to walls and ground for correct collision detection.
✓ **Adjust patrol settings** such as move speed and ground check radius.
✓ **Modify or create animations** for walking, jumping, and death behaviors.
✓ **Customize camera shake** and jump effects using the CinemachineImpulseSource and Particle System.

This concludes the **2D Jump Enemy AI - Smooth Animations, Camera Shake & VFX** documentation. By following these instructions, you can easily customize and integrate the jump enemy AI into your 2D platformer game, Good Luck !